

# Final Report

## Virginia Marine Debris Reduction Plan Refinement



Submitted to the Virginia Coastal Zone Management Program by Katie Register, Executive Director, Clean Virginia Waterways of Longwood University

### **Contributors to this report:**

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Of Longwood University



The Virginia Coastal Zone Management Program is a network of state agencies and coastal localities. The Virginia Department of Environmental Quality serves as the lead agency for the network.

## PROJECT SUMMARY

This task supported the Virginia Coastal Zone Management (CZM) Program's commitment to provide leadership in reducing the amount of trash and marine debris from land-based and water-based sources in Virginia and the Mid-Atlantic region. This grant from the VA CZM Program to Clean Virginia Waterways (CVW) of Longwood University supported various projects that furthered the implementation of the Virginia Marine Debris Reduction Plan (funded under FY11 Task 95.03).

The work on this grant was accomplished by CVW in close collaboration with the staff of the Virginia CZM Program, and stakeholders in Virginia as well as other mid-Atlantic states.

### **About the Virginia Marine Debris Reduction Plan**

The Virginia Marine Debris Reduction Plan serves as a roadmap for nonprofit organizations, local governments, state agencies, regional partners, researchers, and industry as they work together on sustained approaches to reducing the flow of plastic trash and other trash items into our coastal waters.

The Virginia Marine Debris Reduction Plan utilizes multiple approaches. Solutions to marine debris will come from a combination of:

- Behavior change campaigns;
- Policies and enforcement;
- Increased responsibilities of producers, manufacturers and distributors;
- Informed consumers;
- Acceptable and readily available substitutes (e.g., fabric shopping bags);
- Increased infrastructure to capture materials at sources and increase "ease" in doing the right thing with waste items

### **Funding for this grant:**

This grant was funded with \$60,000.

## Product #1

### Marine Debris Reduction in Virginia and the Mid-Atlantic

During this grant period, progress was made on implementing many aspects of the Virginia Marine Debris Reduction Plan through work described below. Under direction of the Virginia CZM Program, Clean Virginia Waterways (CVW) fostered collaboration between agencies, local governments, researchers, manufacturers and businesses, non-profits and citizens.

#### A. Engaging the Stormwater Management Community on Land-Based Sources of Marine Debris



After consulting with stormwater managers in Virginia (in particular the public works employees of Prince William County) about their litter-related concerns, CVW and CZM organized the second **“Stormwater + Litter Workshop”** (May 28, 2019 in Woodbridge, VA). A total of 67 stormwater professionals from local governments, military bases, universities and businesses discussed solutions to stormwater-borne litter including monitoring protocols, solutions to intercepting land-based debris items, and preventing litter from entering storm drains. Stormwater managers discussed challenges and solutions to land-based sources of marine debris during the workshop which featured presentations from the Virginia CZM Program, Clean Virginia Waterways, NOAA’s Marine Debris Program, stormwater professionals from DC and large Phase I municipalities, and companies that provide engineered solutions to trap debris in streams, end-of-pipe, and at stormdrains. In addition, Susan V. Collins, President of the Container Recycling Institute presented a review of policies that have worked in other US communities to decrease plastic pollution in stormwater.

Intercepting litter before it enters stream is a core goal of the Virginia Marine Debris Reduction Plan since 60% to 80% of marine debris comes from inland sources including littering, mis-managed solid waste, uncovered trucks, balloon releases, illegal dumping, etc. There are growing concerns about the impacts of debris and plastic pollution in rivers, the ocean and coastal waters, along with increasing emphasis on stormwater management of litter and debris.

#### **CO-SPONSORS of the 2019 Stormwater and Litter Workshop:**

The workshop was coordinated by Clean Virginia Waterways of Longwood University with the following partners

- Virginia Coastal Zone Management Program
- Prince William County Environmental Services—a division of Public Works
- National Oceanic and Atmospheric Administration, Marine Debris Program

**B. Local collaborations:** CVW staff continue to assist Fairfax and Prince William Counties' marine debris prevention work groups as they develop monitoring programs, community outreach, and litter-prevention campaigns. As a result of the first Stormwater and Litter workshop (held in 2018), two high-population counties—Fairfax and Prince William—developed on-going work groups to address plastic pollution and litter in stormwater. These work groups, made up of government staff and NGOs, focus on local solutions to land-based sources of marine debris. Throughout this grant period, CVW staff contributed to these work groups by offering guidance as they developed action plans, built partnerships, and sought funding to support local litter monitoring and litter prevention projects.

#### **C. Keep it Beachy Clean**

CVW's litter-prevention campaign Keep It Beachy Clean—designed to reach beach visitors—enlisted more than 70 restaurants in coastal Virginia communities for the “Strawless Earth Day” for Earth Day in April 2019. Keep It Beachy Cleanup signs were purchased and displayed in the trolleys that move visitors around the beach front, and other Keep It Beachy Clean materials were distributed to hotels, rental cottages, and restaurants in several coastal Virginia communities.



CVW staff also worked closely with partners in Virginia Beach to provide litter-prevention messaging, media coverage, and volunteer cleanup events held in conjunction with the “Something in the Water” concert which brought 40,000 visitors to Virginia Beach in April 2019.





*Clean Virginia Waterways' Keep It Beachy Clean program coordinated with the City of Virginia Beach's Waste Management Division to organize and publicize a cleanup that had 217 volunteers. A total of 6,250 pounds of litter was collected. The cleanup was covered by a local news outlet, the Southside Daily.*

#### **D. Regional Solutions to Marine Debris: The Mid-Atlantic Marine Debris Work Group**

CVW staff were engaged in monthly discussions of the Mid-Atlantic Regional Planning Body Marine Debris Work Group as well as smaller task groups working on development of regional approaches to prevent or remove marine debris. Because of Virginia's earlier work in creating a marine debris reduction plan and creating a CBSM campaign to address balloon litter, CVW and the VA CZM Program staff often provided guidance and background information to the Mid-Atlantic RPB Marine Debris Work Group.

Specifically, the VA CZM Program and CVW contributed to the expansion of a CBSM campaign in Mid-Atlantic states to reduce the intentional releasing of helium-filled balloons. CVW and VA CZM Program staff assisted MARCO with many aspects of its grant from NOAA Marine Debris Program including focus groups, development of surveys, analysis of input, and consultations with Dr. Doug McKenzie-Mohr, the premier expert on Community-Based Social Marketing. CVW and CZM staff participated in a one-day workshop in Annapolis (2/27/19) where mid-Atlantic partners discussed future work to be done on the grant.

#### **E. Outreach and Raising Awareness**

This grant allowed for the continued hosting of two web sites: JoyfulSendoff.org and PreventBalloonLitter.org. CVW and VA CZM staff continued to update the websites and posts on Facebook. Resources, data, and information about the VMDRP, Joyful Send-off Community-Based Social Marketing campaign, balloon monitoring and mid-Atlantic regional planning on marine debris prevention were shared with attendees of the VA CZM Program Partners Workshop, the Youth Ocean Summit at the VA Aquarium, nine college classes, VA Green Program Conference, the Chesapeake Research Consortium's microplastic workshop, and the Sierra Club's Annual VA Conference.

**F. Virginia's Litter Tax Discussions:** CVW continued to engage with nonprofits, including Clean Fairfax, LitterFreeVA.org, Lynnhaven River NOW, and the Virginia Sierra Club, as they sought to have the Virginia Litter Tax increased for the first time in more

than 40 years. While Clean Virginia Waterways doesn't lobby legislators, it does share information from its 25-year data base about litter in Virginia.

### **G. "Kick the Straw" Campaign for Campuses**

Clean Virginia Waterways worked with partners on the Longwood University campus to develop and implement a pilot campaign called "**Kick the Straw**" for campuses. This included testing messages and images with our target audience (college students), development of resources, an event during which the documentary "Straws" was shown, and a mechanism for collecting the pledges made by college students to skip single-use straws.

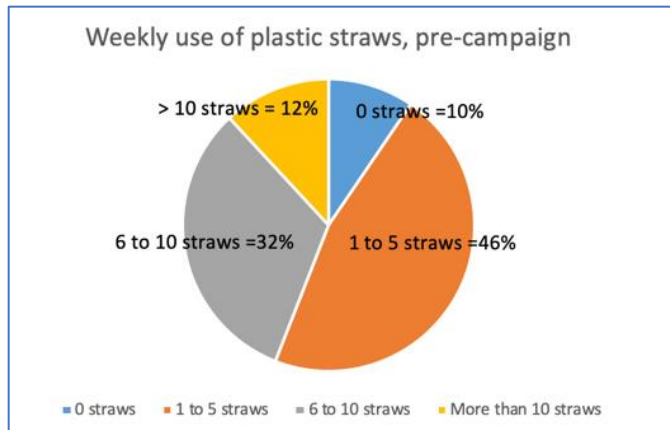
The campaign was designed as a Community-Based Social Marketing commitment campaign for students to take a pledge to quit using plastic straws. The goal was to design a campaign strategy and resources that could be diffused to other college campuses. A campaign message of "Kick the Straw" and artwork incorporating a charismatic turtle kicking a straw was developed and test marketed among students on the Longwood University campus. The campaign engaged many CBSM elements including making a public commitment, receiving a prompt in the form of stickers, stimulating social norms through direct contact between people and signage at locations where plastic straws are used, and providing reusable metal straws as an incentive.



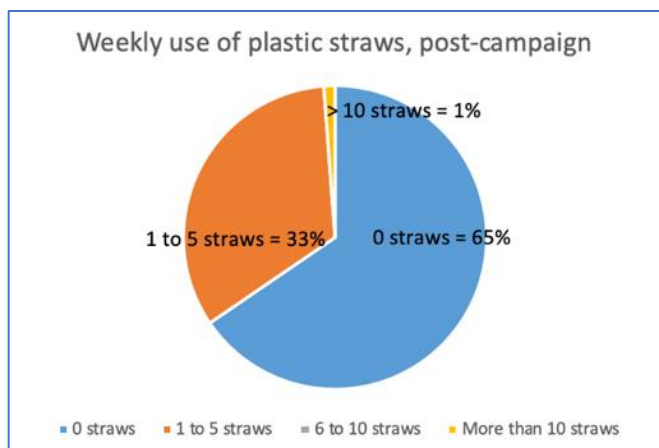
*This image of a turtle kicking a straw, with the message "kick the straw" tested well with college students. Versions of this image were used throughout the campaign.*

Signed pledge cards and photos were affixed to a pledge board in a public location along with a poster encouraging people to take the pledge and links to social media sites. Many of these techniques and resources were shared with two other participating schools, George Mason University and Virginia Commonwealth University, which did "mini-pilots" of the campaign.

Evaluation: In a follow-up survey, people who pledged to skip plastic straws for 30-days indicated that they sharply decreased their use of straws. Prior to the campaign, 10% of students reported using no plastic straws in a week. Post-campaign, 65% of students reported using no plastic straws in a week.



*Prior to the Kick the Straw campaign, students reported using many single-use plastic straws. While 10% of students said they did not use plastic straws, the vast majority did, with 32% using 6 to 10 plastic straws a week, and 12% using more than 10 per week.*



*After the Kick the Straw campaign, students reported using dramatically fewer single-use plastic straws. A total of 65% reported using no plastic straws, and 33% reported using 1 to 5 plastic straws a week.*

The post-campaign survey also asked “*If the pledge was hard to keep, why?*” The most common answer (36 out of 84 responses) was that there were not enough alternatives to plastic straws available on campus. This implies that further engaging food outlets in providing paper straws – or straws only upon request – would be an effective method to reduce single-use plastic straws.

Complete information about the Kick the Straw campaign’s graphics, how we implemented the pilot, and results of the post-campaign survey are found in Appendix II.

## Product #2

### **Mid-Atlantic Marine Debris Summit**



*Some of the attendees at the Mid-Atlantic Marine Debris Summit gather around a large sea turtle made out of thousands of balloons that had washed up on Virginia's shoreline.*

CVW and CZM organized the Mid-Atlantic Marine Debris Summit, June 17-19, 2019 in Arlington, VA. 114 researchers, educators, policy-makers and businesses from the Mid-Atlantic and beyond shared case studies, updates on research, social marketing campaigns, and different approaches to raising awareness and changing behaviors to reduce marine debris.

The goals of this summit were to inspire and empower our partners in marine debris reduction, and to take the first steps in creating a marine debris reduction plan for the Mid-Atlantic.

Summit attendees received updates on current marine debris science and trends and explored techniques and tools effective in enhancing knowledge, changing behavior, and influencing policies that reduce marine debris.

Attendees departed with increased capacity to collaboratively and successfully reduce marine litter in the Mid-Atlantic.

The full agenda and list of participants can be found in Appendix III.

Presentations from the Summit can be downloaded from <https://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/MarineDebris/2019Mid-AtlanticMarineDebrisSummit.aspx>

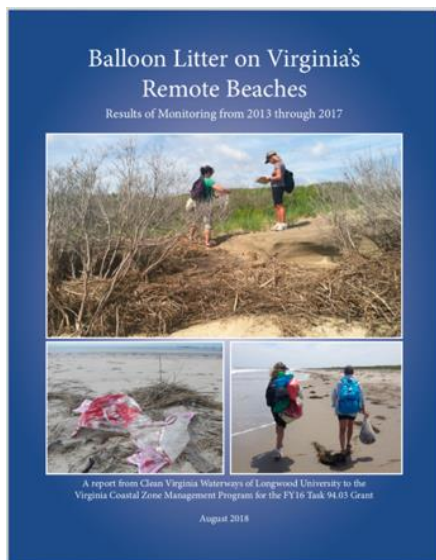


## Product #3

### Balloon Debris Monitoring

Fisherman Island National Wildlife Refuge was monitored in January and July 2019 as part of this grant. This site was selected as Virginia's main monitoring site to track marine debris deposition over time as part of the NOAA Marine Debris Programs' grant to MARCO. No monitoring could be done in spring 2019 due to the nesting of protected birds.

Researchers Christina Trapani and Kathy O'Hara were sub-contracted by CVW to conduct monitoring of balloon litter on Fisherman Island National Wildlife Refuge to better understand the abundance, distribution, accumulation and fate of balloon litter in coastal environments of Virginia. Data collected in January and July 2019 will supplement the August 2018 report, *"Balloon Litter on Virginia's Remote Beaches; Results of Monitoring from 2013 through 2017,"* by Christina Trapani, Kathy O'Hara and Katie Register. That report was submitted to the Virginia Coastal Zone Management Program in August 2018 as a deliverable of FY16 grant. The 2018 report can be downloaded from: <https://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/MarineDebris/MarineDebris-Balloons.aspx> and also from: [www.longwood.edu/cleanva/publications.html](http://www.longwood.edu/cleanva/publications.html)



In order to standardize monitoring and assessment of balloon-related litter, CVW developed and began using a new protocol entitled *Balloon Litter Monitoring and Assessment for the Coastal Environment* (O'Hara, Trapani and Register, 2018). These protocols will enhance the ability to determine where balloon litter is most prevalent in specific coastal areas and provide a basis for monitoring and assessment of balloon litter on a regional, national, or international level. Per the protocol, surveys are conducted along a premeasured one mile of coastline at each site four times per year—spring, summer, fall, and winter when feasible.

#### Highlights from this Year of Monitoring

Balloon-related litter items (N=616) topped the list of most commonly found items during the surveys. The rest of the top-ten list was made up of plastic beverage bottles (n= 567), fishing nets and pieces (n=251), plastic bottle caps (n=200), construction materials (n=200), shotgun wads (n=141), food wrappers (n=138), rope pieces (n=123), glass beverage bottles (n=106) and plastic cups & plates (n=81).

Rank	Item	Number
1	Balloon-related items	616
2	Beverage bottles, plastic	567
3	Fishing nets & pieces	251
4	Bottle caps, plastic	200
5	Construction materials	200
6	Shotgun wads	141
7	Food wrappers	138
8	Rope pieces	123
9	Beverage bottles, glass	106
10	Cups & plates, plastic	81

### **All Balloon-related Litter**

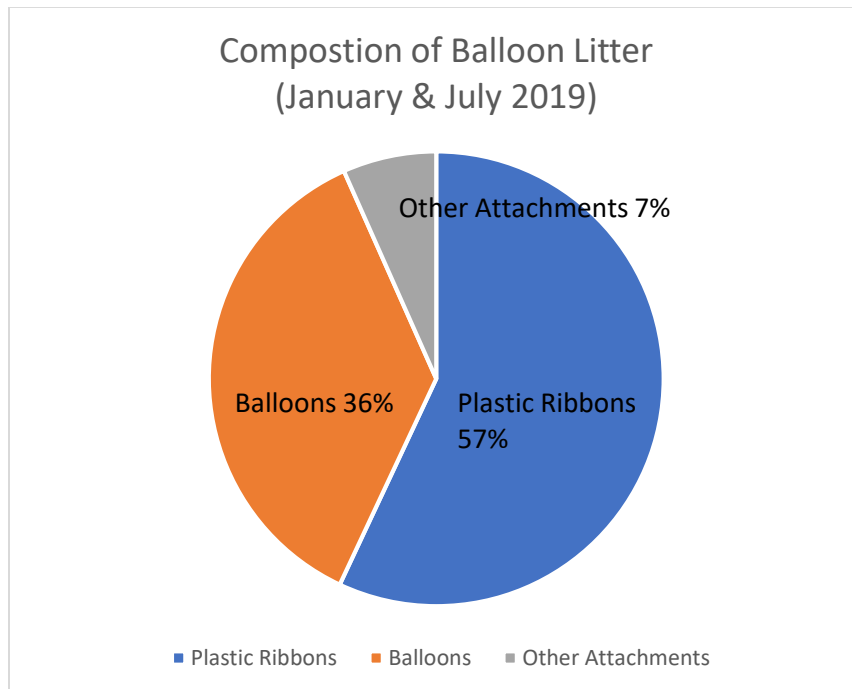
For each balloon litter item recorded, specific information was obtained on the type (latex, foil, weather balloon) and quantity. Data were also collected about ribbons and other attachments. The 616 balloon-related litter items from these two surveys included 155 latex balloons, 69 foil balloons, 351 plastic ribbons, and 41 attachments such as plastic disks, pieces of tape, and clips used to tie-off balloons and attach plastic ribbons. No weather balloons or sky lanterns were recorded during this study period.

### **Balloon-related items:**

Latex Balloons	155
Foil Balloons	69
Ribbons	351
Attachments	41
Total	616

### Composition of Balloon Litter

Of the balloon-related litter, 57% was made up of plastic ribbons, 36% was made of balloons, and the remainder 7% was made up of other attachments.



*Plastic ribbons accounted for 57% of the balloon-related litter .*

### Latex vs. Foil Balloons

Latex balloons outnumbered foil balloons, accounting for 69% (N=155) of all balloons. Foil balloons comprised 31% (N=69) of the total balloons. Findings from the previous five-year study were latex balloons (56%) being more abundant than foil (43%).

### Plastic Ribbons and Other Balloon Attachments

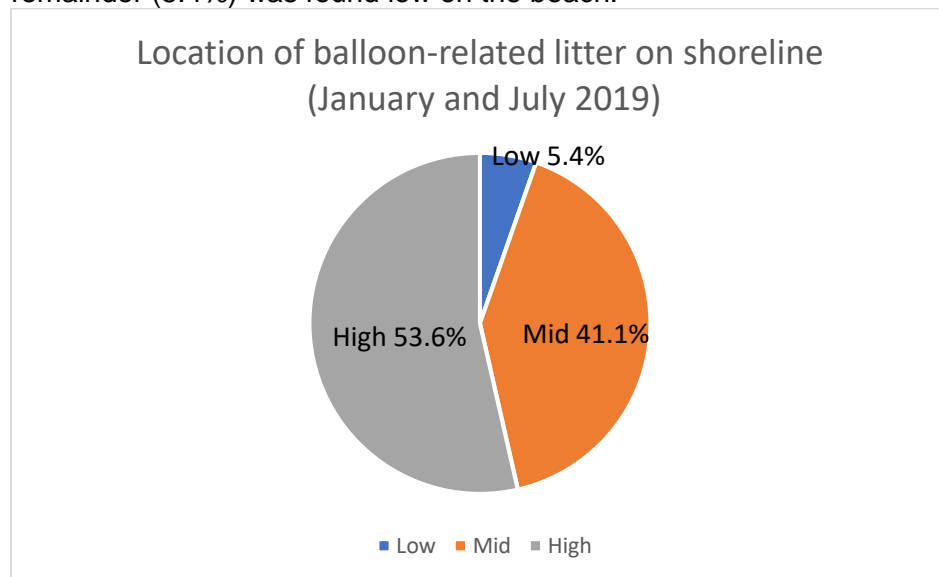
At least 351 plastic ribbons were collected during this study period. This count is a conservative since multiple plastic ribbons entangled in a bunch could not be accurately counted in the field. In these cases, ribbon bunches were recorded as one unless distinct colors were noted. Therefore, while our plastic ribbon count was large, it is also an underestimate of true amounts.

### Event and Greeting Messages

Both foil and latex balloons can be purchased with pre-printed messages indicating specific events and greetings such as "Happy Birthday," "Congratulations," and "I Love You." During this study period, five balloons had "Happy Birthday" messages, four were related to graduations, and each of the following events had one balloon: Sale, Baby Boy, It's your day, engagement.

### Shoreline Location of Balloon Litter

The location of all balloon debris was recorded according to the beach profiles of “low,” “mid” and “high.” The majority (53.6%) were found above the high tide line and in the dune vegetation. This is similar to previous findings when 63% of all balloon litter was found above the high tide line. 41.1% of the balloon litter was found mid-beach, and the remainder (5.4%) was found low on the beach.



*The majority of balloon-related litter items were found above the high tide line and in the dune/vegetation.*

It is assumed that winds eventually blow most marine debris items including balloons and plastic ribbons toward the highest portion of the beach where it becomes trapped by dune vegetation. As this area is critical for nesting birds, diamondback terrapins, and sea turtles, balloon-litter concentrated here may pose an increased threat of entanglement.

### Summary of Findings

The large amount of balloon-related litter recorded on Virginia’s remote beaches continues to be of concern especially in areas designated for protecting wildlife. Most of this litter continues to accumulate on the highest portions of the beach, which is critical habitat for nesting diamondback turtles, sea turtles, and shorebirds. Balloons and their associated litter (plastic ribbons and other attachments) were the most abundant type of marine debris recorded on Fisherman Island National Wildlife Refuge.

Latex balloons were again the most common type of balloon litter found. The prevalence of plastic ribbons is also a consistent finding from the previous study. Since the balloon industry recommends not attaching ribbons intended for mass release, it appears consumers are either not complying with this suggestion or that these balloons are not from mass releases.



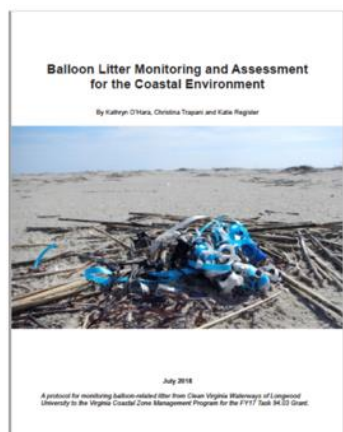
## Other Notes

### Balloon Litter Monitoring and Assessment for the Coastal Environment: A Protocol

CVW produced and delivered to the VA CZM Program this 25-page protocol in mid-2018. Originally a deliverable anticipated for this FY18 grant, CVW completed it early in order to have it available for use in the Mid-Atlantic states as grant partners monitor balloon litter on their beaches. Input from MARCO partners in New York, New Jersey, Delaware, and Maryland have led to some adjustments in the Protocol. A revised Protocol document is underway.

The protocol can be downloaded from the CVW Publications page:

<http://www.longwood.edu/cleanva/publications.html>



*This protocol will allow groups to monitor balloon litter in coastal environments and create comparable data.*

### Instructional Video

In the previous grant year, CVW created an instructional video for Mid-Atlantic partners on how to use the GPS units that were provided to them through a VA CZM Program grant. Amazingly, this video has been viewed more than 11,300 times.



*This video can be viewed on YouTube at:*

<https://www.youtube.com/channel/UC79VQJ1IkeGbKJDT-6owRyw>

## **APPENDICES**

- Appendix I – Stormwater and Litter Workshop
- Appendix II – Kick the Straw Campaign for College Campuses
- Appendix III – Mid-Atlantic Marine Debris Summit

## Appendix I – Stormwater and Litter Workshop, May 28, 2019

### Agenda

*Stormwater & Oceans: the Connection*

**Laura McKay**, Manager, Virginia Coastal Zone Management Program

*VA Litter Tax / Litter Abatement Fee Update. Trash Free Virginia – legislation tracker*

**Katie Register**, Executive Director, Clean Virginia Waterways of Longwood University

*NOAA Grant Cycle and the VA Emergency MD Plan*

**Jason Rolfe**, Response Coordinator, National Oceanic and Atmospheric Administration, Marine Debris Program

*Plastic Industry's Response to Litter & Marine Debris*

**Stuart Harris**, Director, Marine and Environmental Stewardship, American Chemistry Council

*Microplastics: Results from the Chesapeake Bay Program Scientific & Technical Advisory Committee Workshop on Microplastics in the Chesapeake Bay and its Watershed*

**Matt Robinson**, Environmental Scientist, Stormwater Management Division, Government of the District of Columbia

*Case Study: Volunteer Collaboration: Taking MS4 Public Outreach to the Next Level*

**Clay Morris**, Natural Resources Section Chief, Prince William County and **Tim Hughes**, Environmental Services Division, Public Works, Prince William County

*Case Study: Fairfax County: How Community Partnerships Can Help Reduce Litter*

**Corey Miles**, Senior Environmental Planner/Coastal Program Manager, Northern Virginia Regional Commission and **Emily Burton**, MS4 Program Analyst, Stormwater Planning Division, Fairfax County

*Reducing Plastic Packaging in Stormwater: Policies That Really Work*

**Susan V. Collins**, President, Container Recycling Institute

*Stormwater Litter Reduction Practices: Nuts and Bolts*

Moderator: **Matt Robinson**, Environmental Scientist, Stormwater Management Division, Government of the District of Columbia

This overview of litter interception technologies & their applications was presented by:

- **Amy Rogers**, National Inlet Protection (NIP)
- **Chris French**, BioClean
- **Gary Hopkins**, Storm Water Systems, Inc.
- **Thomas G. Sprehe**, PE, BCEE, KCI Technologies, Inc.

### Attendee List -- Stormwater and Litter Workshop

	<b>First Name</b>	<b>Last Name</b>	<b>Affiliation (municipality, private entity, etc.)</b>
1	Jessica	Adams	Prince William County
2	Heather	Ambrose	Fairfax County
3	Bruna	Attila	City of Baltimore   Office of Sustainability
4	Marc	Aveni	Prince William County Environmental Services
5	Paul	Bernard	Warrenton, VA
6	Derek	Briggs	US Geological Survey
7	Megan	Brown	Henrico County
8	Emily	Burton	Fairfax County
9	Dale	Chestnut	municipality
10	Rossanna	Clark	Prince William County Government
11	Jenn	Clarke	City of Richmond
12	Brenda	Claudio	George Mason University
13	Jen	Cobb	Henrico County
14	Susan	Collins	Container Recycling Institute
15	Mark	Colwell	Prince William County Government
16	Pamela	Couch	Federal Government MS4
17	Alice	Crowe	Greater Prince William Climate Action Network
18	Jeremy	Crowley	Prince William County Government
19	Shannon	Curtis	Fairfax County
20	Tom	Dombrowski	Prince William County Government
21	Justin	Ellis	Clean Virginia Waterways
22	Kevin	Flickenger	Prince William County Government
23	Joseph	Formanski	City of Winchester
24	Chris	French	BioClean
25	Anthony	Gartrell	Prince William County Risk Management
26	Diana	Handy	Arlington County
27	Jane	Harris	Virginia State University
28	Stewart	Harris	American Chemistry Council
29	Gayle	Hooper	Fairfax County
30	Gary	Hopkins	Storm Water Systems, Inc
31	Kathy	Hoverman	consulting



32	Mariya	Hudick	Tri-County/City Soil & Water Conservation District
33	Tim	Hughes	Prince William County Public Works-Watershed Management
34	Zach	Huntington	Clean Fairfax
35	Sherry	Johnson	Langley Air Force Base
36	Christy	Kehoe	NOAA Marine Debris Program
37	Ryn	Kennedy	Henrico County
38	Nancy	Lauer	Duke University
39	Tony	Marquez	Prince William County Government
40	Laura	McKay	Virginia Coastal Zone Management Program at VA DEQ
41	Audra	Medve	Department of Parks, Rec & Tourism
42	Corey	Miles	Northern Virginia Regional Commission
43	Ruth	Minich-Hobson	VA DEQ
44	Clay	Morris	Prince William County - Environmental Services
45	Deb	Oliver	Prince William County
46	Ashley	Palmer	Northern Virginia SWCD
47	Mukesh	Patel	Prince William County
48	Paul	Peach	US Geological Survey
49	Prem	Poudel	Prince William County, Dept. of Public Works
50	Jonet	Prevost-White	City of Richmond
51	Frank	Principi	Prince William County, VA Board of Supervisors
52	Katie	Register	Clean VA Waterways of Longwood University
53	Matt	Robinson	Stormwater Management Division, D.C. Government
54	Amy	Rogers	National Inlet Protection (NIP)
55	Jason	Rolfe	Marine Debris Program, NOAA
56	Denise	Sarchiapone	KCI Technologies, Inc.
57	Camela	Speer	Mount Vernon District Supervisors Office
58	Thomas	Sprehe	KCI Technology, Inc.
59	Veronica	Tangiri	Prince William County Government
60	Jonathan	Taylor	VSU
61	Carmen	Todd	Private entity
62	Andrew	Uglow	Schools

63	David	Ungar	Prince William County
64	Ian	Vinson	Prince William County Government
65	Deana	Williams	Henrico County
66	Virginia	Witmer	VA Coastal Zone Management Program at VA DEQ
67	Jane	Xu	GMU

## Appendix II –

# Kick the Straw: Reducing the Use of Single Use Plastic Straws on a College Campus Through Community-Based Social Marketing

### Summary

Clean Virginia Waterways worked with partners on the Longwood University campus (in Farmville, Virginia) in 2018-2019 to develop and implement a Community-Based Social Marketing pilot campaign called **“Kick the Straw”** for campuses. This included testing messages and images with our target audience (college students), development of multi-media materials, an event during which the documentary “Straws” was shown, and a mechanism for collecting pledges made by college students to skip single-use straws for 30 days.

The goal was to design a campaign strategy and resources that could be diffused to other college campuses. A secondary goal was for Longwood University to complete in the nationwide “Pledge Against Plastic Straws Campus Challenge 2019” that was sponsored by Simply Straws, a California-based company that sells reusable straws. A campaign message of “Kick the Straw” and artwork incorporating a charismatic turtle kicking a straw was developed and test marketed among students on the Longwood University campus. The campaign engaged many CBSM elements including making a public commitment, receiving a prompt in the form of stickers, stimulating social norms through direct contact between people and signage at locations where plastic straws are used, and providing reusable metal straws as an incentive.

Many of these techniques and resources were shared with two other schools, George Mason University and Virginia Commonwealth University. In a follow-up survey, people who pledged to skip plastic straws for 30-days indicated that they sharply decreased their use of straws. Prior to the campaign, 10% of students reported using no plastic straws in a week. Post-campaign, 65% of students reported using no plastic straws in a week.

### Targeted Behavior

This campaign targeted the reduction of the use of single plastic straws on the Longwood University campus and at Longwood owned and operated food and beverage locations.

### Target Audience: Students

Longwood University students were the primary target audience for the pilot campaign. Campaign efforts targeted the student body broadly through hosting or attending events in which a broad cross section of student groups and diversity would be expected to attend. Concurrent with efforts to reach students, campaign partners also engaged with the on-campus food service provider, Aramark, in order to engage them as a partner.

The campaign was designed with the intention to share these approaches with students on other campuses across Virginia. During the pilot study techniques and resources were shared with two other participating schools, Georgia Mason University and Virginia Commonwealth University.

## Design and Pilot of Kick the Straw Campaign Strategies and Resources

The Kick the Straw campus pilot project was designed based on Community-Based Social Marketing strategies as defined by Doug McKenzie-Mohr in his book *Fostering Sustainable Behavior*<sup>1</sup>. The specific messaging and strategies chosen were based on research into other plastic straw campaigns, a survey to test various messages performed just before the beginning of the campaign, and application of CBSM principles and techniques at a small scale followed by adjustments based on performance during the course of the campaign.

### **Campaign Messaging**

An effective campaign message is essential to successful engagement and outcomes. And the audience for this campaign, college students, are likely amongst the most discerning in what messaging they will pay attention to due to the extreme competition for their time. Longwood University is uniquely challenged in this regard as student engagement in other extracurricular activities (including service activities) is extremely high for a school its size (approximately 5,000 students).

Research was conducted on other plastic straw prevention campaigns across the country and a long list of campaign slogans and images were identified against which to test two slogans and an image developed for the Kick the Straw campaign.

A Test the Message survey was administered to 56 students in advance of the launch of the campaign to determine how students may respond.

“Kick the Straw” as a standalone slogan was in the bottom half of positive responses (Agree or Strongly Agree) to the question “Do you agree this slogan is the most effective for a campaign?”

<b>Test the Message - Campaign Slogans</b>		<b>Aggregate Agree and Strongly Agree</b>
1	Straw Wars	66.7%
2	Don't Be a Sucker/The Final Straw	66.7%
3	Skip the Straw	63.6%
4	The Last Plastic Straw	57.4%
5	Take Action and Show You Give A Sip	56.4%
6	Don't Suck, Sip Responsibly	54.5%
7	Be Straw free	52.7%
8	#1LessStraw	49.1%
9	Kick the Straw	48.1%
10	Plastic Straws Suck	40.0%

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<sup>1</sup> McKenzie-Mohr, D. 2011. *Fostering Sustainable Behavior Change*. 3<sup>rd</sup> Edition. New Society Publishers. Gabriola Island, BC, Canada



11	No Straw Please	38.9%
12	Shedd The Straw	38.2%
13	Don't let the summer suck	37.0%
14	Kick the Plastic Straw Habit	30.9%

However, when the slogan was coupled with the imagery of a charismatic turtle (that we've named Joffrey) kicking a plastic straw, the response was considerably stronger.



*This image of a turtle kicking a straw, with the message “kick the straw” tested well with college students. Versions of this image were used throughout the campaign.*

Campaign Images % responding		Aggregate Agree and Strongly Agree
1	Kick the Straw	73.2%
2	We Skip the Straw	69.1%
3	Straw Wars	62.9%
4	The Final Straw/Don't Be A Sucker	61.8%
5	Plastic Straws Suck	60.0%
6	Don't Suck / Sip Responsibly	54.5%
7	Don't Let the Summer Suck	53.7%
8	Give a Sip	50.0%
9	The Last Plastic Straw	49.1%
10	One Less Straw	47.3%
11	Shedd the Straw	47.2%
12	No Straw Please/No Straw Thanks	36.4%

## Campaign Strategy Components

### **Kick the Straw - Film / Panel / Q&A / & Campaign Kickoff**

The launch of the Kick the Straw campaign was scheduled to coincide with an evening film event featuring the documentary “**Straws**” (34 mins) followed by a panel discussion. What made the event unique is that attendees were encouraged to take the Kick the Straw Pledge upon entry to the event, and walked through a series of steps designed to enhance that commitment. Then, as part of the panel discussion, a speaker explained the psychology of human behavior change and how CBSM techniques would be used to shift campus social norms regarding use of plastic straws over the following two months of the campaign.

The key element of the evening was that each attendee was asked to take a 30 day pledge to quit using plastic straws. They were asked to sign a pledge card, provide us with their e-mail, have their photo taken with a Kick the Straw Placard. After the event, people were given four prompts or reminders of their pledge and their commitment: One copy of their signed pledge card, a Kick the Straw circular sticker, a photo of themselves with the Kick the Straw placard, and a free metal straw with cleaner.

### **Components of the Campaign Event**

- **Recruiting Co-Hosts for the Event:** Clean Virginia Waterways served as the lead organization for the campaign but recognized that CVW’s name recognition amongst Longwood students was relatively low. CVW also recognized that high student engagement in the event as volunteers was necessary due to the “fact to face” contact required for collecting pledge commitments, taking photographs and providing prompts. Therefore, a top priority was recruiting key organizations on the Longwood campus to co-sponsor the event. We targeted closely affiliated groups first and invited others to be strategic in hitting key demographics. Co-hosts included:
  - *Clean Virginia Waterways* – Lead organization
  - *Cormier Honors College*
  - *Environmental Club*
  - *Office of Sustainability*
  - *Epsilon Eta* – an environmental honors fraternity
  - *The Wildlife Club*
  - *Alpha Lambda Delta* – an honors society whose service project for the year was focused on the environment
  - *Honors Student Association*
  - *Student Government Association*
- **Co-hosts Became a Partnership:** A goal to have co-hosts referred to as “Partners” was to demonstrate broad solidarity for sustainability efforts on campus with the Kick the Straw campaign simply being an initial launch strategy. To imply these broader goals, the co-hosts were named the **Longwood Sustainability Partnership** and additional groups were encouraged to join the Partnership.
- **Promotions and Attendance at the Event** –The attendance goal was a minimum of 60 attendees and ideally over 100 attendees (room capacity was about 140). Actual attendance at the event was 135 which well exceeded goals. The co-hosts/partner groups were instrumental in getting the word out on the event. Word of mouth was recognized as the most effective tool for promoting the event, with co-host leaders expressly asking their members to attend. This strategy was adopted by the Office of Sustainability later in the semester leading to their highest attendance of any OS sponsored event. Other aspects of the promotion included printed color handbills that could be disseminated by partner, a Facebook RSVP

page, and a creative poster designed by Longwood's Design Lab which foreshadowed our turtle mascot theme. a "Kick the Straw LU" Instagram page was created just before the event which was used extensively during the campaign itself. We also created a Facebook page: <https://www.facebook.com/kickthestrawl/>



*This poster announced the Launch of the Kick the Straw campaign. It invited students to view the documentary “Straws” on February 28, 2019 in Bedford Auditorium.*

- **Volunteers, Venue and Event Layout** –Partners planning this event demonstrated a high degree of professionalism which consisted of having 12 volunteers in professional dress with name badges directing attendees through a well-organized and planned layout. The reception room was divided into the following areas and volunteer assignments:
  - **Greeters** at the door who explained the pledge, layout and agenda for the evening.
  - **Campaign Commitment Table** – with signup sheets to take the pledge and explaining the steps: signing the card, getting a photo, and picking up gifts after the film.
  - **Pledge Card Table** for signing the pledge. Upon exiting from the event, this table had all the prompts described above (photo, sticker, pledge card, metal straw) laid out next to each individual's name.
  - **Photos** –taking photos of those who pledge was a dynamic and engaging component of the event.



*After taking the pledge, individuals and groups posed with the Kick the Straw placard (in two sizes) so that their commitment could be shared on social media. One of the most important aspects of effective commitments is that they be durable and visible. Photos accomplish both goals especially if they can be sent or given to the pledge taker, or shown to others on a pledge board as we did later in the campaign.*



*Students from several campus organizations assisted the Kick the Straw campaign as team leaders.*



## Prompts

A significant amount of time and effort was put into identifying, developing and evaluating the most appropriate prompts for the campaign to ensure that people who made the commitment were inclined to continue to carry out the committed behavior.

A prompt is defined as any tool that serves to remind someone (who has already made a commitment) to actually engage in that behavior that they are “already predisposed to do.” A prompt then is simply a reminder, like a chime on your phone 15 minutes before a meeting, or having a bowl on the counter where you put your keys and wallet everyday so you don’t have to look for them. Prompts help us to “remember to act.”

The Kick the Straw campaign developed the following prompts.

- **Signed pledge card** – CBSM emphasizes that written commitments with a signature are more successful than verbal only commitments. We developed a pledge card with a space for a signature and had each person sign two cards, one that we retained and the other was given for them to keep as a reminder of their commitment. The retained copies were then pinned to a pledge board in a campus dining area where plastic straws were used. After the film event, the process was simplified to one card which we retained.



The graphic features the text "KICK THE STRAW" in large, bold, yellow capital letters on a light blue rectangular background. To the right of the text is a cartoon illustration of a green turtle with a brown shell, holding a green straw in its mouth. A pink straw is shown being bent or broken, with a small green leaf-like shape at the end of the break.

Name: \_\_\_\_\_

Pledge End Date: (30 days) \_\_\_\_\_

Thank you for your support!

- **Kick the Straw circular sticker** – A small sticker (2"x2" round) with the Kick the Straw image and slogan was created and given to each individual who took the pledge. Individuals were encouraged to affix the sticker to a semi-permanent object like a water bottle or computer, not their clothing to be thrown away in a day. The hope is that seeing the sticker would not only remind them to continue the behavior but indicate to others that giving up straws was becoming a normative behavior.



- **Photos (Students with the Kick the Straw Placard)** – Another tenant of effective commitments is to make a commitment public. According to Doug McKenzie-Mohr (2011), “the more public a commitment the more likely we are to honor it.” With this in mind we asked to take everyone’s photo during two of our events (the showing of the “Straws” documentary, and Longwood’s Got Talent ) and intermittently at other tabling events. At the “Straws” documentary event, we used a Canon Color Photo portable printer to print 2 copies of every photo, one for each individual to take home and another to pin to a pledge board. While printing photos was a great idea and popular, it proved to be labor intensive and expensive and this prompt was not further implemented after the Kick Off event.



*Signed Pledge cards and photos were affixed to the pledge board along with a poster encouraging people to take the pledge and links to social media sites.*

- **Pledge Board in the Campus Dining Hall** – A cork board was installed in a popular campus dining hall immediately adjacent to where plastic straws are dispensed. We located it here because CBSM stresses that “...to be effective, a prompt should be delivered as close in space and time as possible to the target behavior.”
- **Social media** – Several individuals found themselves on the pledge board and posted an Instagram and/or Facebook message creating another social media prompt.

- **A Reusable Metal Straw with Cleaning Brush**– Nearly every individual who took the pledge during the campaign was given a free metal straw with a cleaner and informational card attached. Distribution of these straws aligned with the CBSM campaign goals.

The long term goals of the CBSM approach is to remove barriers to the behaviors you are trying to encourage, and to make it more challenging to engage in the behaviors you are trying to discourage. Making metal straws readily available on campus as part of the pledge accomplished several goals:

- Removed one of the main impediments to adoption; an easy alternative
- Began to normalize an alternative behavior that was likely an unfamiliar option to many students.

### **Metal Straws as Both a Prompt and a Norm**

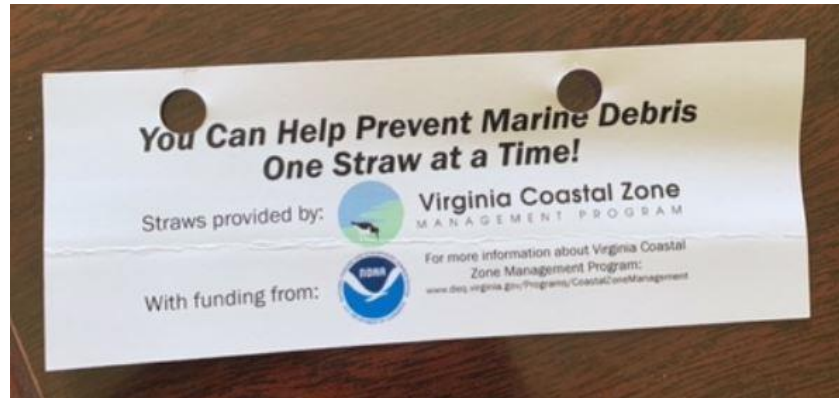
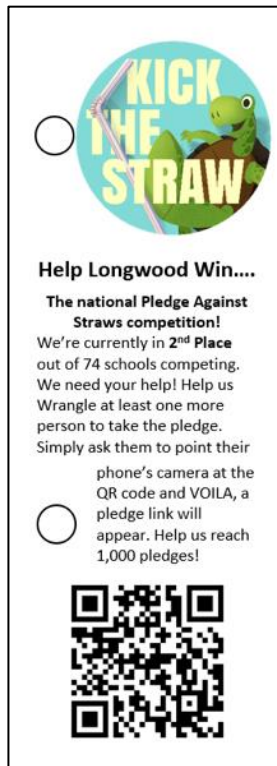
When students were seen using a metal straw, it served as a Prompt to students who had taken the pledge to remember their commitment and to also remember to use their own metal straw. For students who had not taken the pledge, seeing students use metals straws serves as a cue that a new social norm was emerging. Seeing another student use a metal straw sends a subconscious message to those around the user “Should I be using a metal straw?”



*Seeing other students using metal straws is a social cue that a new social norm is emerging and sends a subconscious message “Should I be using a metal straw?”*

### **Use of Informational Cards with Metal Straws**

Each time a metal straw is given (or sold) there is an opportunity to affix an informational card to provide additional information. Since one of our campaign goals was to win a national competition, we were able to encourage the further diffusion of the pledge to other adopters by placing a QR code to the Pledge Link directly onto the informational card. When a straw and informational card were given, it was then easy to ask “Would you be willing to ask one more person to take the pledge?”



*Informational cards were attached to each metal straw.*

### Tabling

By far the most successful approach to collecting pledge commitments was through hosting numerous tabling events at different locations on the Longwood Campus. Between February 28, 2019 and April 30, 2019, the partnership held 10 total tabling events including our initial Campaign Kick Off and attendance at the well-attended "Longwood's Got Talent" event. Tabling was the most effective venue for **face to face contact** soliciting a commitment.

### Digitizing the Collection of Pledges

Over the course of the campaign, the method to collect the names and e-mail addresses changed from a written sign-in sheet (requiring student volunteers or staff to transpose this data into a spreadsheet) to iPads linking to a Google Form or the Simply Straws Contest website. This approach evolved further to encouraging students to use their own phones to directly link to the Pledge Link via a QR code accessed through their phone's camera app. Approximately 15% of the time a smart phone's camera would not recognize the QR code and students were able to quickly navigate to the "Kick the Straw LU" Instagram page.





The collection of pledge commitment contact information using digital tools is highly recommended for future campus commitment campaigns for the following reasons:

- **Reduces the risk of errors** in transposing the data from a written form to a digital spreadsheet since digital contact information is entered by the user.
- **Speeds up the time needed to collect contact information** – Most students can type their name and e-mail addresses faster than they can write it. This allows for more face-to-face contact and discussion about other details behind the campaign.
- **QR Codes engage a fairly novel use of technology**

Digital collection of pledges can be facilitated by saving the pledge links on the home screen of each iPad.

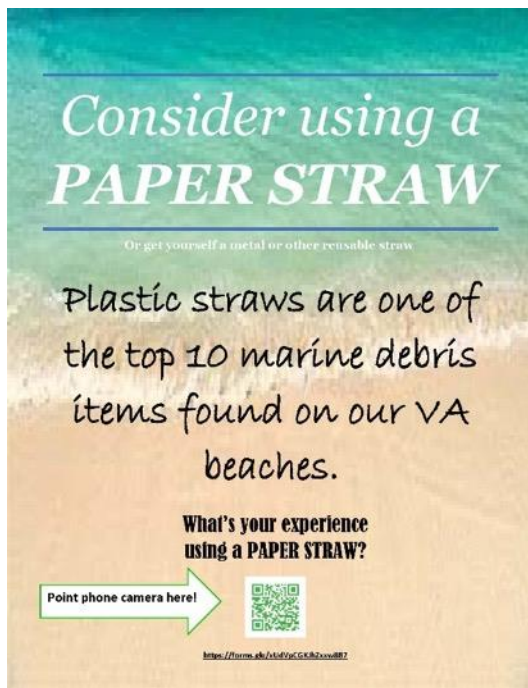
### **Paper Straw Trial**

As we were planning the campaign, a student suggested that we provide a trial of paper straws at the Starbucks coffee shop on campus to see how students responded. This suggestion was brought up during our first meeting with Aramark and they were amenable to the general idea and explained that it would need to occur somewhere other than Starbucks that has its own strategy for eliminating plastic straws. They suggested that a better location would be their “Farm Grill” which features quick-order hamburgers, fries, etc.

At the time, one of the largest and best known manufacturers of paper straws, Aardvark Straws of Fort Wayne, Indiana was completely back-ordered (indicating a nationwide run on paper straws). Clean Virginia Waterways has supported prior campaigns involving paper straws and was able to provide a box 600 straws (7 inch long) and a sign which read “Consider Using a Paper Straw.”



A box of 600 paper straws (custom made by Aardvark) were donated to Longwood Dining's Farm Grill in order to pilot student response to using paper straws. A survey was designed to get feedback from students on their experience using paper straws. Unfortunately the straws were all taken before the survey link was placed, and at the time Aardvark straws were sold out nationwide.

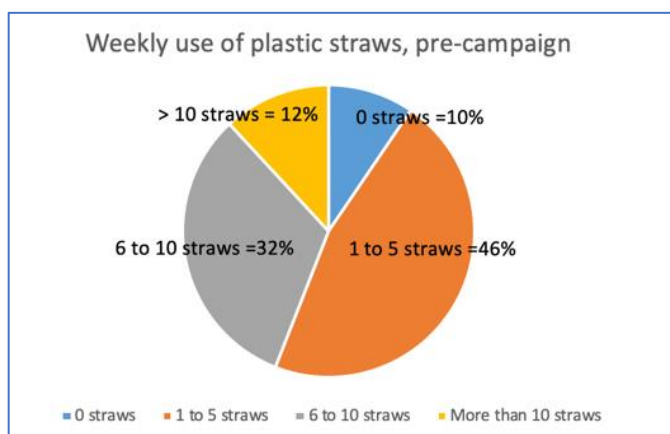


## Results

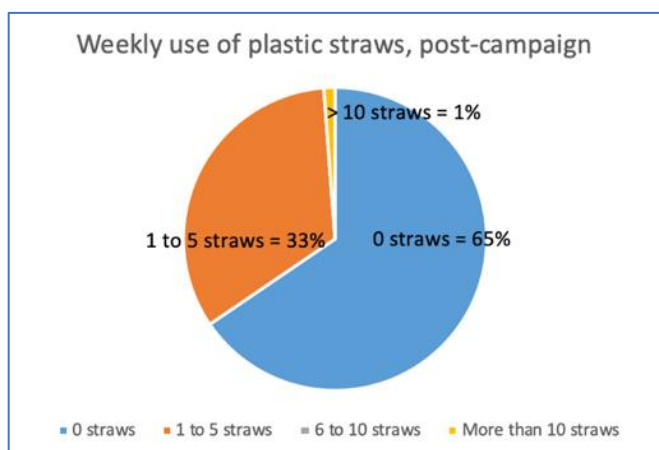
### Measurement of Campaign Strategy Effectiveness and Behavior Change

A follow-up survey was administered to approximately 1,000 participants in the pledge to determine if the campaign was effective in changing behaviors, and which aspects of the campaign had the strongest effects on their behavior. A total of 84 people completed the post-campaign survey.

In the follow-up survey, people who pledged to skip plastic straws for 30-days indicated that they sharply decreased their use of straws. Prior to the campaign, 10% of students reported using no plastic straws in a week. Post-campaign, 65% of students reported using no plastic straws in a week. Likewise, 12% of students reported using 10 or more straws a week pre-campaign; after the campaign, only 1% of students reporting using 10 or more straws each week.



*Prior to the Kick the Straw campaign, students reported using many single-use plastic straws. While 10% of students said they did not use plastic straws, the vast majority did, with 32% using 6 to 10 plastic straws a week, and 12% using more than 10 per week.*



*After the Kick the Straw campaign, students reported using dramatically fewer single-use plastic straws. A total of 65% reported using no plastic straws, and 33% reported using 1 to 5 plastic straws a week.*



The post-campaign survey also asked *“If the pledge was hard to keep, why?”* The most common answer (36 out of 84 responses) was that there were not enough alternatives to plastic straws available on campus. This implies that further engaging food outlets in providing paper straws – or straws only upon request – would be an effective method to reduce single-use plastic straws.

<b>If the pledge was hard to keep, why?</b>
36 responses: Not enough "alternative to straws" options around campus
11 responses: Forgot to keep it
Other Responses:
A few instances of going out spontaneously and not anticipating using the straw, thus using a plastic; after the first two times of doing so I became more aware and kept it on my person more often
Drink was served with a straw in it before I could decline a straw.
Even when refusing straws waitstaff gave them in beverages open and unwrapped in the glass
I have about 5 silicone straws and 6 metal straws, so when they get dirty, they go in the dishwasher, aaaaand I'm short one more clean straw in my bag.
It was a habit using plastic. I forced myself to use the metal one. Now it is easier.
Milkshake or other thick drinks made it hard
Restaurants giving straws without asking
Sometimes I would forget my straw if I didn't need the backpack that I kept it in
The only time I was ever unable to follow the pledge was when ordering alcoholic beverages because they have to serve it with a straw even if you ask for them not to.
There was once or twice that I just forgot

When asked ***“What do you find are the most challenging aspects of using a metal straw (or other reusable straw) in place of a plastic straw?”***

- 55% responded that **remembering to carry it** with them was the biggest obstacle to consistently using a metal straw. Establishing a habit of grabbing a reusable straw amongst your other items when you leave your home or dorm room in the morning is a giant leap in behavior change. A possible solution would be to provide a prompt as close to the time and location of the activity as possible. Posting a reminder poster to remember to pack your reusable straws in dorm room hallways may offer the closest location possible.  
Capitalizing on the recognition of Joffrey the Turtle, the poster could include Joffrey holding the cleaning brush and the metal straw, with the message: “Remember to Clean and Pack your Metal Straw!” Then mention the incentive of a reduced price on beverages for adopting this behavior.
- 38% responded that **cleaning the straw** was a challenge to using it. As was mentioned, the metal straws we provided came with a cleaning brush, so it's clear that the barrier being described is more of a problem with the convenience of cleaning the straws between uses. Most of us are not used to carrying around kitchenware that we must remember to clean before our next trip out. Conveniences that could be created might be to actually encourage students to

clean this and other items in the locations close to where they will be used. Encouraging the cleaning of metal straws or reusable cups or cutlery in the restrooms near the food outlets on campus might be one way to advance a social norm of being comfortable to clean your items after their use, or before their next use.

The post-campaign survey asked an open-ended question “***What do you think we can do to make the campaign more effective?***” Many of the students responded that other single-use food and beverage items should be part of the campaign, and that food outlets on campus (POD, Greens to Go, FarmGrill, etc) should be offering more environmentally-friendly options.

Ban straws and allow for people to bring own cups, forks, etc. Maybe give discount
Encourage places like Starbucks, FarmGrill, etc to give out only reusable cups with lids for beverage options. That way even if we don't have our straw on us or if we don't have one, we don't feel enticed to use plastic straws. Sure the metal straws are helpful but we still are only using one-use cups with plastic lids. Maybe also give out metal silverware instead of plastic. And at places like Panda Express, implement reusable containers instead of styrofoam.
Broader education - more alternatives to use.
Don't just hand out the straws. Explain why people need to use them too
The whole of single use plastic items is a problem... promote recycling and reusable water bottles etc.
Educate people on the negative effects of ALL single use plastic and Styrofoam like what is given out at greens to go and the pod
Expand to dining locations near campus
Expanding to All single use plastics, and Styrofoam.
Students on campus felt bad after taking the pledge and then still using plastic straws. Encourage students to use reusable cups in addition to straws with incentives to prevent them from forgetting to bring their reusable item. Charge a fee for every time someone purchases a beverage or food item in a single-use plastic container or straw, it'll make them want to avoid using single-use plastics altogether. Don't just offer discount incentives. Purchase non-plastic beverage or food container options.
Get the restaurants to participate.
Hand out more metal straws
Have a collection point for plastic straws so people can see the impact/waster of single use plastics
Have group talks about what the effect of not only straws but plastic byproducts do the environment
Have more alterations to straws as well as single use plastic. Also try and get partner food companies take the pledge too. That is where I had the most trouble when going out to eat. I didn't want to use the straw but since it was on the table, they would have to throw it away anyways.
Having a few more opportunities for students to receive metal straws to kickstart their pledge

I love that there will be paper alternatives at restaurants around campus! That will help many people. It was hard to remember to keep the pledge when lids for cups at Greens to Go, POD, and Farm Grill are only suited for straws (when we had no paper alternative). Many people mentioned that they didn't feel that the straw campaign was "worth it" when they used throw-away plastic at Greens to Go multiple times a week. While every straw makes a difference, there is a long way to go on our campus. Greens to Go (one of my favorite places to eat) being one of the main problems.
I think Longwood did a good job with the pledge and getting the word out but could provide more alternatives to plastic straws
I thought it was good
Include paper cutlery/cups etc. at longwood dining locations to add on to the campaign
It was successful at Longwood University, I'm not sure how to improve it. You should ask the people running it there.
Maybe stickers or buttons as handouts to anyone (pledge or not), and keeping up with the metal straws for those who took the pledge or encouraged others to take the pledge.
More alternative straws! Things like smoothies and frappes are a real challenge
More education
More events!
More opportunities to get straws
More outreach to people on campus by posters or booths.
More plastic free alternative on campus
More reusable options, like cups and lids
Do not give out plastic straws everywhere
Offer alternatives, bring back the tabbed drink tops at Greens to Go so people can drink with the top on without a straw
Offer other reusable alternatives (cups, lids, silver ware, etc)
Offer other use of straws, and or have lids that do that require straws.
Offering single use straw options made from materials other than plastic that are biodegradable.
Printing "Longwood University" or our Rotunda logo on the straw would be a good incentive for our students. Straws could also come in solid blue and grey. Maybe departments or colleges can have their individual names or logos printed on the straws.
Push to cut down other single use plastics like the lids on our cups
Share this with other schools. It's easy to understand how to skip straws.
Supplying paper straws on campus
Take away all plastic straws from campus
Try to get signs at the counter of the various establishments around campus as a reminder
We could add other plastic cutlery to the list and use the bamboo instead. It is what I have started doing.
Work with local restaurants to discourage the use of plastic straws
You did a great job!!

Finally, the post-campaign survey asked ***"Would you have taken the "no plastic straw" pledge if you had not been given a metal straw?"***

A total of 49% (n=41) responded “yes” – they would have pledged even without the metal straw as an incentive. Another 35% (n=29) said they probably would have pledged, while 16% (n=13) said they pledged just so they could get a metal straw. We asked this question because engraved metal straws with cleaning brushes cost \$1.66 to \$2.00 each depending on the quantity ordered. We were pleased to see that 84% of the students would have, or probably would have, pledged even without the metal straws.

### **Outcomes of the Kick The Straw Campaign**

- All freshman arriving on campus in August 2019 received a metal straw during orientation courtesy of Aramark, Longwood’s catering contractor. The orientation included a brief overview of the reasons to decrease the use of single-use food and beverage items, but did not include an opportunity for students to make a pledge.
- During the school year, when a reusable straw is presented at a Longwood dining location, students received a discount on “to go” beverages.
- Reusable Straws were sold at various outlets on campus
- Plastic straws were removed from most food outlets on campus, and paper straws were available by request.
- **Building a Relationship with Longwood Dining Staff**  
The Kick the Straw campaign’s broader goals went beyond collecting a large number of student pledges, or even ensuring that these students were reminded to keep their commitment. The purpose of this campaign was to focus on environmental issues and sustainability, and to have students (and dining hall staff) re-think their automatic use of single-use disposable food and beverage-related items. Towards these ends the campaign recognized the need to identify root challenges and opportunities on Longwood’s campus towards adopting more sustainable behaviors.

### **Pilots on other campuses**

Two universities in Virginia also adopted the Kick the Straw campaign during the course of the pilot: Virginia Commonwealth University and George Mason University. The goal of sharing the campaign resource materials and strategy was to identify strengths and weaknesses of the campaign as applied to other universities, and also to learn from differences in the creative application of these strategies by student leaders in different locations. This collaboration allowed the project team to evaluate how future campaigns can be effectively diffused to college campuses.

### **Virginia Commonwealth University (VCU)**

VCU was the first to adopt the Kick the Straw campaign in conjunction with their role in participating in the Richmond Environmental Film Festival. Student leaders became involved in elements of the festival (under the instruction of Dr. Ching-Yu Huang on the Biology Faculty) and hosted a screening of “Before the Flood” a climate change film on Tuesday, February 12, 2019 in a library on Campus.

While a much smaller element of their event, VCU students enjoyed the interaction with the attendees who were asking for participation in the pledge.

As mentioned earlier, we created a “Kick the Straw LU” Facebook page. Later, a student at VCU created a “Kick the Straw VCU” Facebook page

(<https://www.facebook.com/kickthestravcu/>) and we discovered that the VCU team changed the campaign graphics. Instead of using the sea turtle, they used their school mascot.



*The student team at VCU implemented the Kick the Straw campaign on their campus with this modified graphic that featured their mascot.*



*As done at Longwood University, the students at VCU set up tables at events and spoke to people about taking a 30-day pledge to not use plastic straws.*

The Longwood Sustainability Partners had a video conference follow-up with VCU to exchange ideas on the event and the pledge. The following are some things learned from this interaction:

- **Lessons learned** – Students enjoy working with and exchanging information with their peers at other schools. It builds a sense of solidarity of purpose, and indicates the broader importance of any one event or campaign, as an opportunity to share lessons learned with other student leaders.
- **Sharing resources** – members of the VCU team appreciated having attractive materials (stickers, posters, boards, social media files) that they could use.

- **Sharing ideas and “how to” tips** – Students from the two universities shared information on how they set up tables, and ideas on engaging more students in taking the pledge.

### **George Mason University (GMU)**

As part of a course in sustainability, two GMU students organized a showing of the documentary “Straws,” (lent to them from CVW) and asked for pledges from attendees to skip single-use plastic straws for 30 days. Clean Virginia Waterways provided the students with approximately 150 metal straws which were handed out as prompts. This event occurred late in the school year, and there was no formal analysis of outcomes from the pledges.

## **Discussion**

The Kick the Straw campaign pilot met with some significant successes. Perhaps most significant was the decrease in plastic straw use among the students who took the pledge. Also, Longwood University won first place in the nationwide Pledge Against Plastic Straws Campus Challenge 2019 organized by Simply Straws. Longwood’s collecting of 878 pledges from students, staff and the local community put the university ahead of 71 other institutions participating in the national competition, including Indiana State (#2) and participating Virginia schools such as Virginia Commonwealth University (#6).

## **Lessons Learned**

### **1. Resource intensive**

The robust “Kick the Straw” campaign on the Longwood campus, like other behavior change programs, required a significant amount of time (staff and volunteers) and some commitment of funds. Mostly time.

Staff time went into building partnerships, pre-campaign testing of messages, creating campaign materials, ordering supplies, event planning, and obtaining pledges through one-on-one conversations.

Supplies purchased included: metal straws with cleaning brushes, informational cards to go with the straws, pledge cards, signs, bulletin board, food and beverages for the documentary viewing event, printing supplies, and licensing fee to show the “Straws” documentary.

Planning the “Straws” documentary event took a great deal of time for CVW staff and the many students who participate. We had to borrow tables, easels, table cloths, popcorn machine, popcorn supplies, lemonade, pitchers and ice, cameras, printers, iPads, etc.

Tabling events were very successful in obtaining pledges, and speaking one-on-one about the campaign and its goals. But hosting tables at ten campus events took a great deal of time to organize the volunteers, tables, obtain permissions, and borrow the necessary iPads.

### **2. Capacity building in CBSM methods**

Following the methods of CBSM, we attempted a systematic, empirical approach to developing this campaign. It was a great learning experience for CVW staff and the many students who were engaged in developing this campaign.

Some members of our student team wanted to decrease the use of all single-use food and beverage packaging, but we wanted to make sure that the campaign did not have too broad a scope. As Doug McKenzie-Mohr stresses, successful campaigns should address a single indivisible behavior – thus we focused on decreasing the use of single-use plastic straws.

We followed the first four of the five steps of CBSM: behavior selection, identification of barriers and benefits, strategy development, and program testing. The fifth step-- broad-scale implementation—is for the future.

### **3. Challenges of Working with a University**

**Time constraints:** Time is of the essence when working within the constraints of a semester. While each semester is about 16 weeks long, the first few weeks are busy for students, staff and faculty –so that it is not a good time to start a new campaign and recruit partners. Likewise, the last few weeks of a semester are very busy. So building partnerships, testing a message, creating materials, gaining pledges at events, and organizing a campus-wide event all get compressed into a few weeks. This compressed timeframe led to some missteps on our part, including missed opportunities to evaluate aspects of the campaign. (See the next page for questions we developed for a post-campaign survey for the VCU and GMU pilots.)

**Sustainability of the program:** As mentioned earlier, this project was resource-intensive, mostly in terms of staff time. Hopefully, having an on-line toolkit will allow people and campus organizations to download the resources, follow the “playbook” and execute the campaign on their campus with a smaller commitment of time than we experienced.

**Turnover of the student population:** Every year, approximately one fourth of the campus population is new as seniors graduate and freshmen arrive on campus. Our “playbook” will suggest that special efforts be made to reach the incoming freshmen during orientation.

### **Future Broad-scale Implementation on other Virginia Campuses**

Clean Virginia Waterways plans to create an on-line campaign toolbox to be circulated to Virginia’s sustainability-affiliated universities to encourage the diffusion and adoption of the Kick the Straw campaign or incorporation of its successful elements into other single-use plastic reduction commitment campaigns. The toolbox will include downloadable files for the printed pieces (stickers, posters, graphics for social media, etc.) and a playbook with instructions, examples and tips to launch a successful Kick the Straw campaign.

We had planned to have a post-campaign survey for the students who participated in the GMU AND VCU pilots, but the semester ended before we could disseminate the survey. Here are the questions we planned to ask:

- How many pledges were you able get for your campaign and what were your main strategies for acquiring pledges (on paper? iPads?)
- Will you follow up with those who took the pledge? If so, what are your goals in your follow up?
- Which of the resources that we provided were you able to use and what did you find most useful?



- What resources did you create or adapt yourselves?
- Who did you get involved? Did you have enough people? What support did you seek and acquire?
- What would you do different next time?
- How many of your team will be returning to the campus next year?
- What were your most effective strategies for getting the most people involved?
- What little things did you learn that would help other college campuses with a similar campaign?
- What were your goals and strategies for your campaign and did you meet them?
- Do you think you'll do this campaign again?
- What's next? Where would you like to see this go? What changes on your campus do you feel are possible as a result of this or future efforts?

## Appendix III – Mid-Atlantic Marine Debris Summit

Researchers, educators, policy-makers and businesses joined together at this collaborative summit to explore Mid-Atlantic regional solutions to decrease litter and marine debris.

**The goals of this summit were to inspire and empower our partners in marine debris reduction, and to take the first steps in creating a marine debris reduction plan for the Mid-Atlantic.**

Summit attendees received updates on current marine debris science and trends and explored techniques and tools effective in enhancing knowledge, changing behavior and influencing policies that reduce marine debris.

Attendees departed with increased capacity to collaboratively and successfully reduce marine litter in the Mid-Atlantic.

### Agenda

#### **Monday, June 17, 2019**

*General Session: Litter & Marine Debris: Global and National Solutions*

*Welcoming Remarks*

**Matthew J. Strickler**, Virginia Secretary of Natural Resources  
Presentation did not include a PowerPoint

[Virginia CZM Program's Journey to Today's Summit on Solutions to Marine Debris through Prevention, Innovation and Collaboration](#)

**Laura McKay**, Program Manager, Virginia Coastal Zone Management Program

[Marine Debris: National and International Perspectives](#)

**Nancy Wallace**, Director, NOAA Marine Debris Program

[Global Status of Marine Debris Solutions](#)

**Christopher Corbin**, Programme Officer, Assessment and Management of Environmental Pollution (AMEP), United Nations Environmental Programme

[Legislative Solutions to Marine Debris](#)

[Bills and Histories Notes](#)

**Elizabeth Andrews**, Director, Virginia Coastal Policy Center, William & Mary Law School

[Science, Education, Policy, and Innovation: What's the Recipe?](#)

**Denice Wardrop, PhD.**, Senior Scientist & Professor of Geography and Ecology, Pennsylvania State University

*Marine Debris: Connections to Other Ecological Concerns*

**Dann Sklarew, PhD**, Associate Professor, George Mason University & Faculty Fellow, Potomac Environmental Research and Education Center

Presentation did not include PowerPoint

[Plastics Industry Efforts to Reduce Marine Debris](#)

**Stewart Harris**, Director, Marine and Environmental Stewardship, American Chemistry Council

[Trash Free Seas Alliance: Land-based Strategies to Address Marine Debris](#)

**Eric DesRoberts**, Senior Manager, Trash Free Seas, Ocean Conservancy

**Tuesday, June 18, 2019**

*General Session: Litter & Marine Debris: National, Regional and Local Solutions*

[Aquariums Unite to Reduce Single-Use Plastic Pollution](#)

**Mark Swingle**, Director of Research & Conservation, Virginia Aquarium and Marine Science Center

[Marine Debris Action Plan Successes](#)

**Jason Rolfe**, Response Coordinator, NOAA Marine Debris Program

[Results from the Chesapeake Bay Program Scientific & Technical Advisory Committee Workshop on Microplastics in the Chesapeake Bay and its Watershed](#)

**Matt Robinson**, Environmental Protection Specialist, DC Department for Energy & Environment, Watershed Protection Division

[Litter Prevention Toolbox](#)

**Laura Cattell Noll**, Program Manager, Trash Free Potomac Watershed Initiative, Alice Ferguson Foundation

*A Collaborative Campaign to Prevent Balloon-related Litter in the Mid-Atlantic:*

**Moderator: Kimberly Grubert**, Coastal Planner, Center for Marine & Coastal Stewardship, Maryland Department of Natural Resources

[MARCO, MACO and the Mid-Atlantic Marine Debris Work Group: Tackling Marine Debris at the Regional Scale](#)

**Laura McKay**, Program Manager, Virginia Coastal Zone Management Program

[Monitoring Balloon Litter on Beaches](#)

**Nicole Rodi**, Planner, Delaware Department of Natural Resources and Environmental Control

[Engaging People Who Release Balloons: Audience Research Overview](#)

**Steve Raabe**, OpinionWorks

[A CBSM Collaborative to Prevent Balloon-related Litter in the Mid-Atlantic](#)

**Virginia Witmer**, Outreach Coordinator, Virginia Coastal Zone Management Program

*Drawing Inspiration from the Sea*

**Jim Toomey**, Renowned and Award-winning Cartoonist and Filmmaker

*Mid-Atlantic States - Solutions to Marine Debris:*

[Mega to Micro: Marine Debris Initiatives in Delaware](#)

**Nicole Rodi**, Planner, Delaware Department of Natural Resources and Environmental Control

[Marine Debris Reduction Strategies in Maryland](#)

**Donna Morrow**, Program Manager, Chesapeake and Coastal Service, Maryland Department of Natural Resources

[34 Years of Reducing Litter through Beach Sweeps](#)

**Alison McCarthy**, Coastal Watershed Protection Coordinator, Clean Ocean Action

[Efforts in New York to Reduce Contributions to Marine Debris](#)

**Krista Stegemann Haas**, Ocean & Marine Outreach Coordinator, New York Sea Grant, Stony Brook University

[Solutions for Reducing Fishing Gear Debris](#)

**Kirk Havens, PhD.**, Director of the Coastal Watersheds Program, Virginia Institute of Marine Science  
Presentation did not include PowerPoint

[State Emergency Response Guides: Planning for Incident Waterway Debris](#)

**Jessica Conway**, Planning and Preparedness Specialist, NOAA Marine Debris Program/Genwest Systems

[Paper or Plastic? \(or Styrofoam, Balloon, or Straw\) Jersey Says: Fuhgeddaboutit](#)

**Jennifer Coffey**, Executive Director, Association of New Jersey Environmental Commissions

[Implementation and Enforcement of Plastic Pollution Prevention Programs in the District of Columbia](#)

**Lillian Power**, Environmental Protection Specialist, Department of Energy & Environment, Government of the District of Columbia

*Combating Litter & Marine Debris on the Local Level:*

[A Sea Turtle Ambassador](#)

**Wayne Jones**, Litter Control Coordinator, City of Suffolk

[Cutting Out Single-Use Plastics at the Source: Ocean Friendly Restaurant Program](#)

**Matt Gove**, Mid-Atlantic Policy Manager, Surfrider

[The “Sipping Point”: Campaigns to Reduce Single-use Plastic Straw Use](#)

**Katie Register**, Executive Director, Clean Virginia Waterways of Longwood University and

**Catherine Lowry Franssen, PhD**, Associate Professor, Psychology, Longwood University

[Stormwater Litter Reduction Practices](#)

**Thomas Sprehe, PE, BCEE**, Senior Vice President, Marine Debris Practice Leader, Director of Innovation and Technology, KCI Technologies, Inc

[Balloon-related Litter: Six Years of Monitoring & Raising Awareness](#)

**Christina Trapani**, Eco Maniac Inc & Marine Debris Researcher

### **Wednesday, June 19, 2019**

#### *Designing Successful Projects for Reducing Marine Debris -- A Panel of Funders*

**Moderator: Donna Morrow**, Program Manager, Center for Marine & Coastal Stewardship, Maryland Department of Natural Resources

[Fishing For Energy](#)

**Kaity Goldsmith**, Manager of Marine Conservation, National Fish and Wildlife Foundation

[NOAA Marine Debris Program: Funding Opportunities](#)

**Jason Rolfe**, Response Coordinator, NOAA Marine Debris Program

**Kacey Wetzel**, Director of Programs for Outreach & Education, Chesapeake Bay Trust

Presentation did not include PowerPoint

[The Curtis & Edith Munson Foundation](#)

**Angel Braestrup**, Executive Director, The Curtis & Edith Munson Foundation

#### *Developing a Mid-Atlantic Marine Debris Reduction Plan*

[Developing a Mid-Atlantic Marine Debris Action Plan](#)

**Christy Kehoe**, Mid-Atlantic Regional Coordinator, NOAA Marine Debris, Program

### **Summit Funding**



*The Summit was funded by the Virginia Coastal Zone Management Program (led by the Virginia Department of Environmental Quality) through federal Coastal Zone Management Act grants from the NOAA Office for Coastal Management and funding from the NOAA Marine Debris Program.*

## Attendees— Mid-Atlantic Marine Debris Summit

	First Name:	Last Name:	Organization/Affiliation:
1	Shannon	Alexander	Accomack-Northampton Planning District Commission
2	Rochelle	Altholz	VA Department of Conservation and Recreation
3	Elizabeth	Andrews	William & Mary Law School's Virginia Coastal Policy Center
4	Laura	Bankey	National Aquarium
5	Nicole	Barbour	Plastic Watch
6	Angel	Braestrup	The Curtis & Edith Munson Foundation
7	Jessica	Bridgeman	Longwood University, Clean Virginia Waterways
8	Avalon	Bristow	Mid-Atlantic Regional Council on the Ocean
9	Emily	Burton	Fairfax County Government
10	Reba	Carruth	Georgetown University
11	Carly	Carter	Longwood University & Peace Corps
12	Laura	Cattell Noll	Alice Ferguson Foundation
13	Brianna	Cervantes	Longwood University, Honors College
14	Kristopher	Clark	Oceans Blue Corp
15	Jenn	Clarke	RVAH2O   City of Richmond Stormwater Utility
16	Jennifer	Coffey	Association of New Jersey Environmental Commissions
17	Jessica	Conway	NOAA Marine Debris Program
18	Diane	Cook	City of Hopewell Stormwater Program
19	Henry	Coppola	Montgomery Parks
20	Christopher	Corbin	United Nations Environment Program
21	Morgan	Corey	Chesapeake Research Consortium
22	Alice	Crowe	Citizen
23	Rebecca	Cummings	George Mason University
24	Eric	DesRoberts	Ocean Conservancy
25	Kelly	Dobroski	Duke University
26	Cindy	Etgen	Maryland Department of Natural Resources
27	Omar	Farooq	George Mason University
28	Jorge	Franco	George Mason University
29	Catherine	Franssen	Longwood University
30	Kaitlin	Gannon	The Jacques Cousteau National Estuarine Research Reserve
31	Sarah	Geren	Arizona State University, PhD student
32	Sofia	Gilani	George Mason University
33	Kaity	Goldsmith	National Fish and Wildlife Foundation



34	Claire	Goubeaux	George Mason University
35	Matt	Gove	Surfrider Foundation
36	Emily	Green	Department of Natural Resources
37	Kimberly	Grubert	Maryland Department of Natural Resources Chesapeake & Coastal Service
38	Barbara	Hannah	Author
39	Stewart	Harris	American Chemistry Council
40	Kirk	Havens	VA Institute of Marine Science
41	Cecily	Hayek	Longwood University, Honors College
42	Helen	Henderson	Littoral Society
43	Tim	Hughes	Environmental Services Division, Prince William County Government
44	Zach	Huntington	Clean Fairfax
45	Thomas	Hutchinson	George Mason University
46	Jolie	Jaycobs	Darby Creek Valley Association
47	Wayne	Jones	City of Suffolk, VA
48	Alanna	Keating	BoatUS Foundation
49	Christy	Kehoe	NOAA Marine Debris Program
50	Suzy	Kelly	Anacostia Riverkeeper
51	Walden	Kiker	BoatUS Foundation
52	Sarah	Kollar	Ocean Conservancy
53	Lorena	Kowalewski	DC Mayor's Office of the Clean City
54	Krystal	Krejcik	Environmental Protection Agency
55	John	Kuriawa	NOAA
56	Grace	Loonam	George Mason University
57	Emma	Maschal	US Environmental Protection Agency
58	Allison	McCarthy	Clean Ocean Action
59	Dan	McGovern	George Mason University
60	Laura	McKay	Virginia Coastal Zone Management at VA DEQ
61	Carley	McLeod	George Mason University
62	Corey	Miles	Northern VA Regional Commission
63	Nicholas	Mill	OSCAR, George Mason University
64	Samuel	Morgan	Longwood University, Honors College
65	Donna	Morrow	Maryland Department of Natural Resources
66	Han	Nguyen	George Mason University
67	Kimberly	Nguyen	George Mason University
68	Heather	Nortz	George Mason University
69	Robbie	O'Donnell	Anacostia River Keeper
70	Dawn	Oleksy	James City County
71	Gabby	Parada	sekoyia (business)

72	Courtne	Park	The Munson Foundation
73	Krupa	Patel	Alice Ferguson Foundation
74	Doreen	Peters	George Mason University
75	Lillian	Power	DOEE
76	Steve	Raabe	OpinionWorks
77	Eva	Rama	George Mason University
78	Katie	Register	Clean Virginia Waterways of Longwood Univ.
79	Ben	Rhoades	George Mason University
80	Matt	Robinson	Government of the District of Columbia
81	Nicole	Rodi	DNREC- Coastal Program
82	Jason	Rolfe	NOAA Marine Debris Program
83	Jennifer	Salerno	George Mason University Faculty
84	Denise	Sarchiapon	KCI Technologies, Inc.
85	Lisa	Schepke	Littoral Society
86	Meredith	Seeley	Virginia Institute of Marine Science
87	Trey	Sherard	Anacostia Riverkeeper
88	Frances	Sherman	Charles County Government
89	Susan	Sidamon-Eristoff	Oceana Inc.
90	Dann	Sklarew	George Mason University
91	Thomas	Sprehe	KCI Technologies, Inc.
92	Krista	Stegemann	NY Sea Grant
93	Mathew	Strickler	Secretary of Natural Resources for the Commonwealth of Virginia
94	Mark	Swingle	Virginia Aquarium & Marine Science Center
95	Veronica	Tangiri	PWSWCD
96	Shino	Tanikawa	NYC Soil & Water Conservation District
97	TBD	TBD	KCI Technologies, Inc.
98	TBD	TBD	KCI Technologies, Inc.
99	TBD	TBD	KCI Technologies, Inc.
100	Ashlyn	Tehoke	sekoyia (business)
101	Lilantha	Tennekoon	Michael Baker International
102	Jim	Toomey	Sherman's Lagoon
103	Theresa	Torrent	Maine Coastal Program / Dept of Marine Resources
104	Christina	Trapani	Eco Maniac Company
105	Kelley	Uhlig	NOAA
106	Benoit	Van Aken	George Mason University
107	Ashley	Van Stone	Trash Free Maryland
108	Nancy	Wallace	NOAA Marine Debris Program
109	Sarah	Ward	The Curtis and Edith Munson Foundation

110	Haley	Wells	George Mason University
111	Kacey	Wetzel	Chesapeake Bay Trust
112	Jeremy	Williams	Potomac Experience Research Education Center
113	Shari	Wilson	Great Bay Work LC
114	Virginia	Witmer	Virginia Coastal Zone Management Program at VA DEQ